

Introduction to Alice Programming



Alice.org

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Download handout: <http://caliss.wikispaces.com/Alice+Programming>



An Educational Software that teaches students computer programming in a 3D environment

FREE!!

- About Alice
- Downloads
- Teaching
- Community
- Publications
- Support



A revolution in computer science pedagogy

alice.org

Alice 3.1



The latest addition to the Alice Suite, Alice 3.1 has been released, designed to support the transition to Java.

[New Features of Alice 3.1...](#)
[Release Notes...](#)
[Download...](#)
[Getting Started with Alice 3.1](#)

All about Alice

Using an innovative 3D programming environment that makes it easy to create animations or games, the Alice Project seeks to provide tools and materials for a conceptual core of computational thinking, problem solving, and computer programming.

The Alice Suite of educational tools is designed to support teaching and learning across a spectrum of ages, grade levels, and classes in K-12 and in college or university courses.

[Read more...](#)

Teaching Materials

The Alice team has developed instructional materials to support students and teachers in using this new approach. Other authors have generously joined our efforts, creating additional textbooks.

[Read more...](#)

The Alice Educator Mailing list provides a quick and easy way to ask questions, post ideas and nifty assignments, and generally support all members of the Alice teaching community.

[Read more...](#)

Alice 2.3



Alice 2.3 has been released with a Spanish language option, and an automatic software update option.

[Release Notes...](#)
[Download...](#)

News and Notes

Third Alice Symposium

The Third Alice Symposium will be held June 19, 2013 at Duke University in Durham, NC. As part of the Symposium, two-day workshops will also be held June 17-18, 2013 (Alice 2.3) and June 20-21, 2013 (Alice 3.1).

Alice workshops Bogota, Columbia

The Alice Project presented two one-day workshops at the Viva Digital, Columbia 3.0 conference in Bogota, Columbia. These workshops were sponsored by the Columbian Ministries of Technology and Information and Education.

[Details / Other News and Notes...](#)

Facebook Page

Share and gather knowledge about Alice through our **Alice Intro to Programming** Facebook page. Students, teachers and enthusiasts are all welcome! If you have a question or comment about Alice, post it here!

Like [Alice Intro to Programming](#)

Alice in the Classroom

Integrates the **Technology Standards**, from creativity and innovation to critical thinking and problem solving.

Easy to use “drag and drop” programming for students to **demonstrate their knowledge** in any content or subject matter.

Engaging and interactive for learning and teaching.

Student examples . . .

<http://www.schooltube.com/organization/170424/>

Teachers: view online lessons

At <http://www.cs.duke.edu/csed/alice09/>

- try them and modify them to fit your classroom needs, provide handouts, start with short lessons and time to play, assign a project with specific requirements

Objectives:

- ☐ Add objects
- ☐ Set up a scene using Positioning tools
- ☐ Quad view
- ☐ Properties: (color, vehicle, sounds)
- ☐ Methods: (predefined, create, edit)
- ☐ Events: (world starts, arrow keys,)
- ☐ User Controls: (Let arrows move)
- ☐ Camera controls: (move, follow, scenes, views)
- ☐ Where to learn more

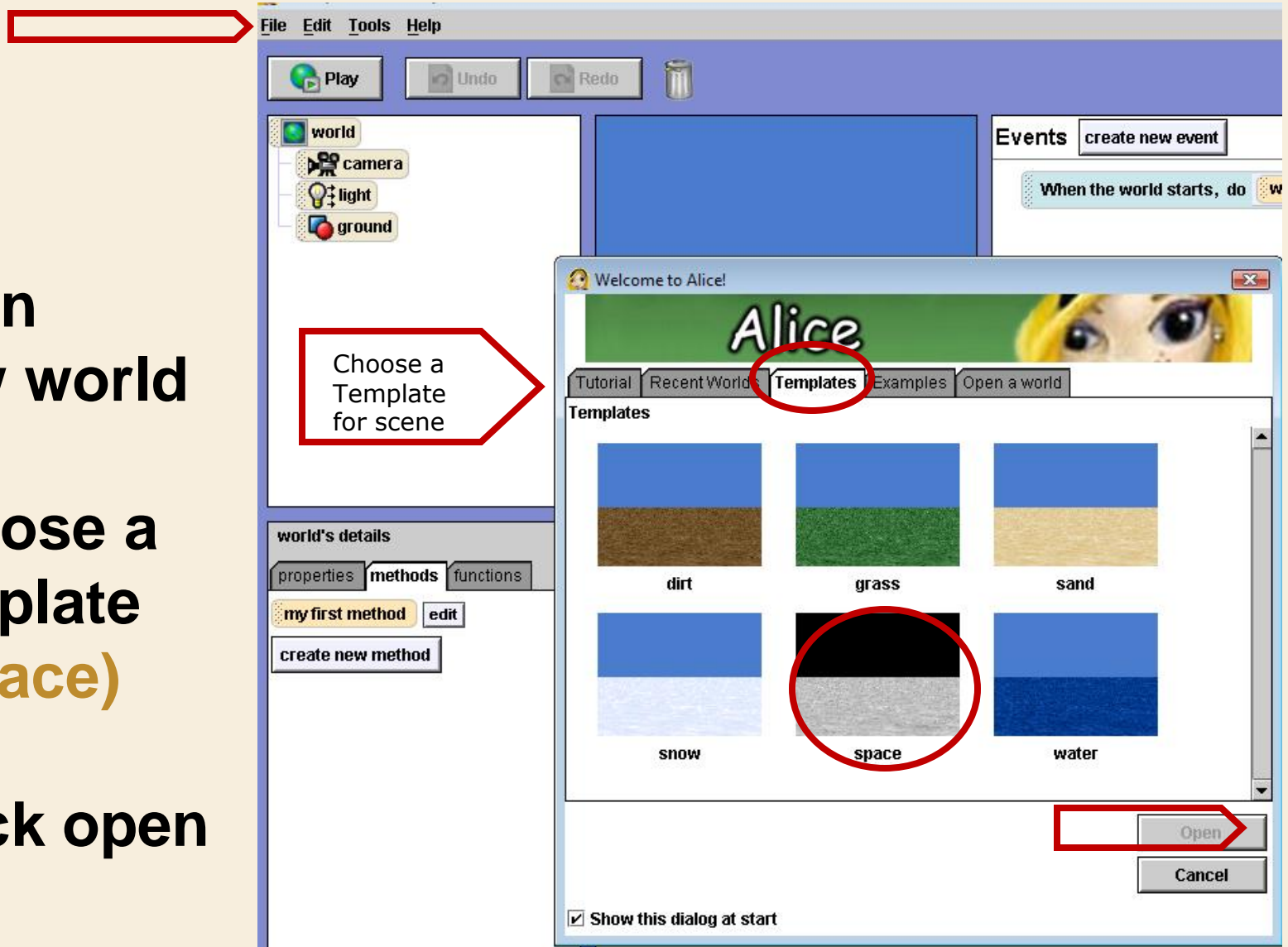
Interface - Open new world

☐ File

☐ Open
new world

☐ Choose a
template
(space)

☐ Click open



Interface - Main Screen

The screenshot shows a software interface with a menu bar (File, Edit, Tools, Help) and a Tool Bar containing Play, Undo, Redo, and a trash icon. The interface is divided into several panels:

- Object Tree:** A list of objects in the world, including world, camera, light, ground, and astronaut. The 'camera' object is circled in red.
- Details:** A panel showing properties, methods, and functions for the selected object (camera). It includes a 'create new method' button and a list of methods: move, turn, roll, resize, say, think, play sound, get a good look at, move to, and move toward.
- World Preview:** A central area showing a 3D preview of the world with a camera view. It includes a green 'ADD OBJECTS' button.
- Events Editor:** A panel for creating and editing events. It shows a 'When the world starts' event with a 'do world.my first method' action.
- Methods Editor:** A panel for editing methods. It shows the 'world.my first method' with 'No parameters' and 'No variables'. It includes a 'create new parameter' button and a 'create new variable' button. The method body contains a block: 'camera move backward 5 meters more...'. At the bottom, there are buttons for 'Do in order', 'Do together', 'If/Else', 'Loop', 'While', 'For all in order', 'For all together', 'Wait', 'print', and a green 'Run' button.

Object Tree:
List of objects in the world

Details:
Properties, methods and functions of an object.

Events Editor
Let arrows move
When mouse click

Methods Editor

Properties

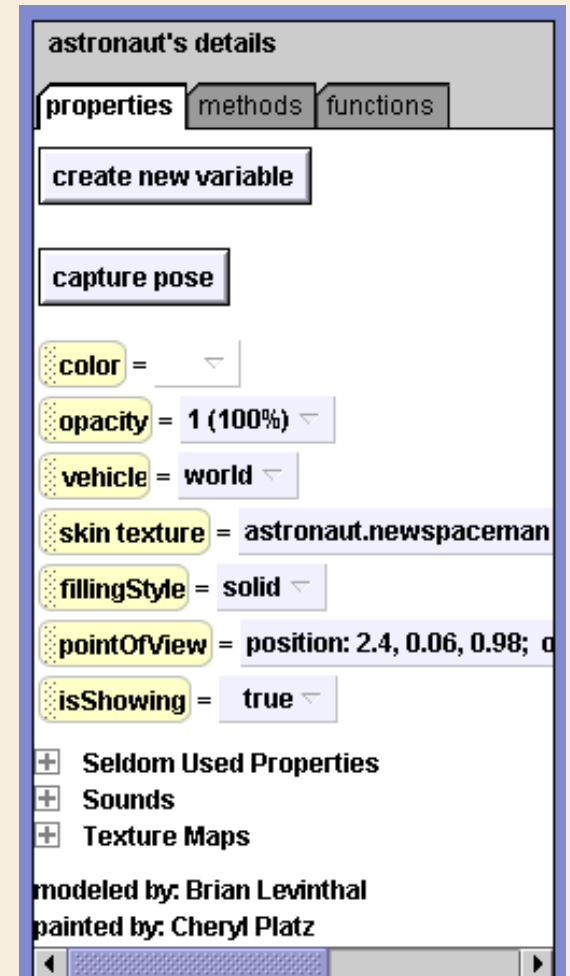
Every Object has properties that you can adjust/change

Practice

1. Click on the **ground**
2. Click **properties**
3. Change **color** (try a few)
4. Click UNDO

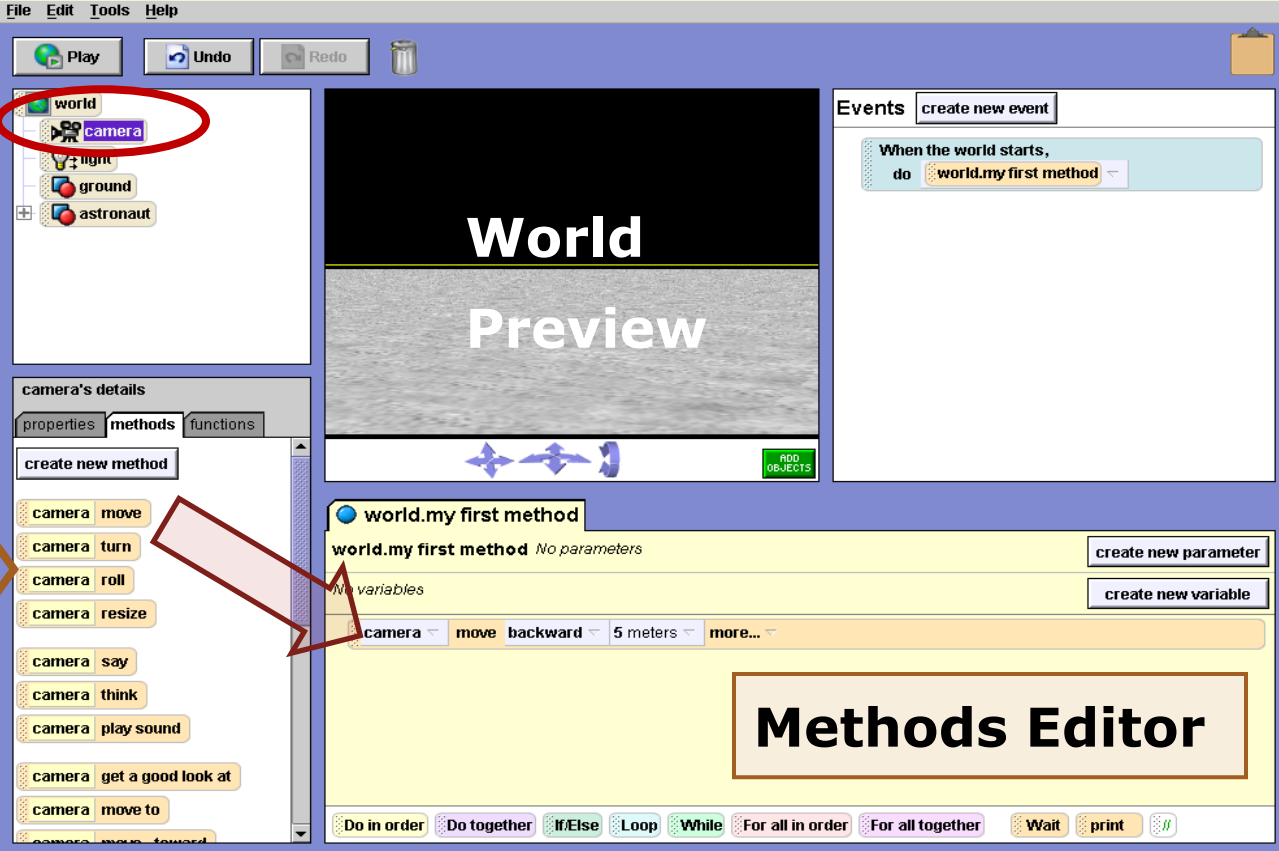
Notice:

vehicle, point of view, sounds
(we will use later)



Methods

Details:
Properties,
methods and
functions of
an object.

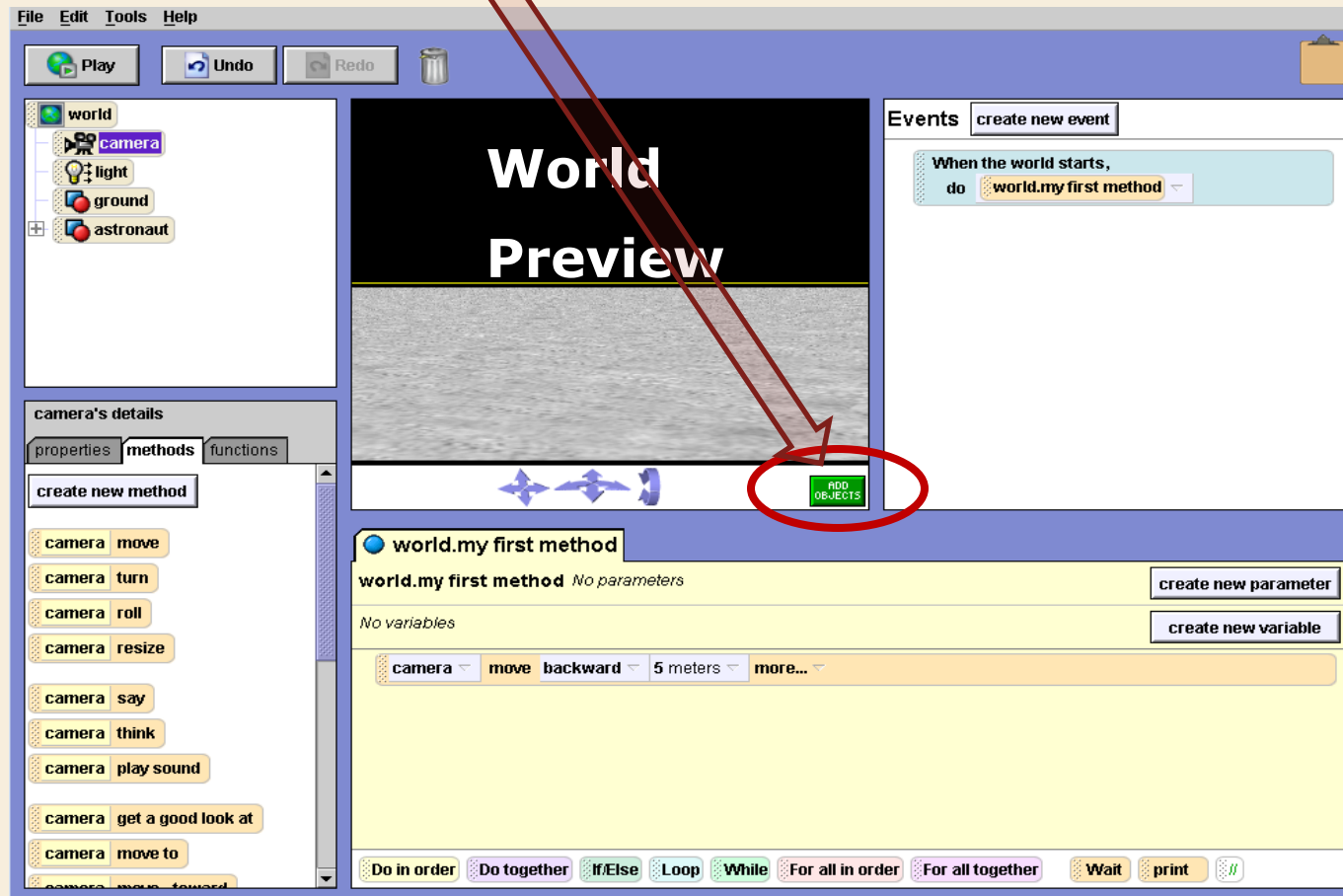


The screenshot shows the Scratch IDE interface. In the top-left corner, the 'world' area contains a 'camera' object, which is circled in red. Below it, the 'camera's details' panel is open, showing the 'methods' tab. A red arrow points from the 'Details' text box to the 'camera move' method in the list. The 'Methods Editor' is also visible, showing the 'world.my first method' block. The 'Events' panel on the right shows a 'When the world starts' event with a 'do world.my first method' block. The 'Methods Editor' shows the 'world.my first method' block with a 'camera' object, a 'move' action, 'backward' direction, '5 meters' distance, and a 'more...' button. The 'Methods Editor' also has a 'create new parameter' button and a 'create new variable' button. The 'Methods Editor' has a 'Methods Editor' label in a box.

1. Click Camera
2. Click Methods
3. Drag “camera move” over “do nothing” in the Editor area, choose “backward, 5 meters. Click More to change duration
4. Click Play (top left)

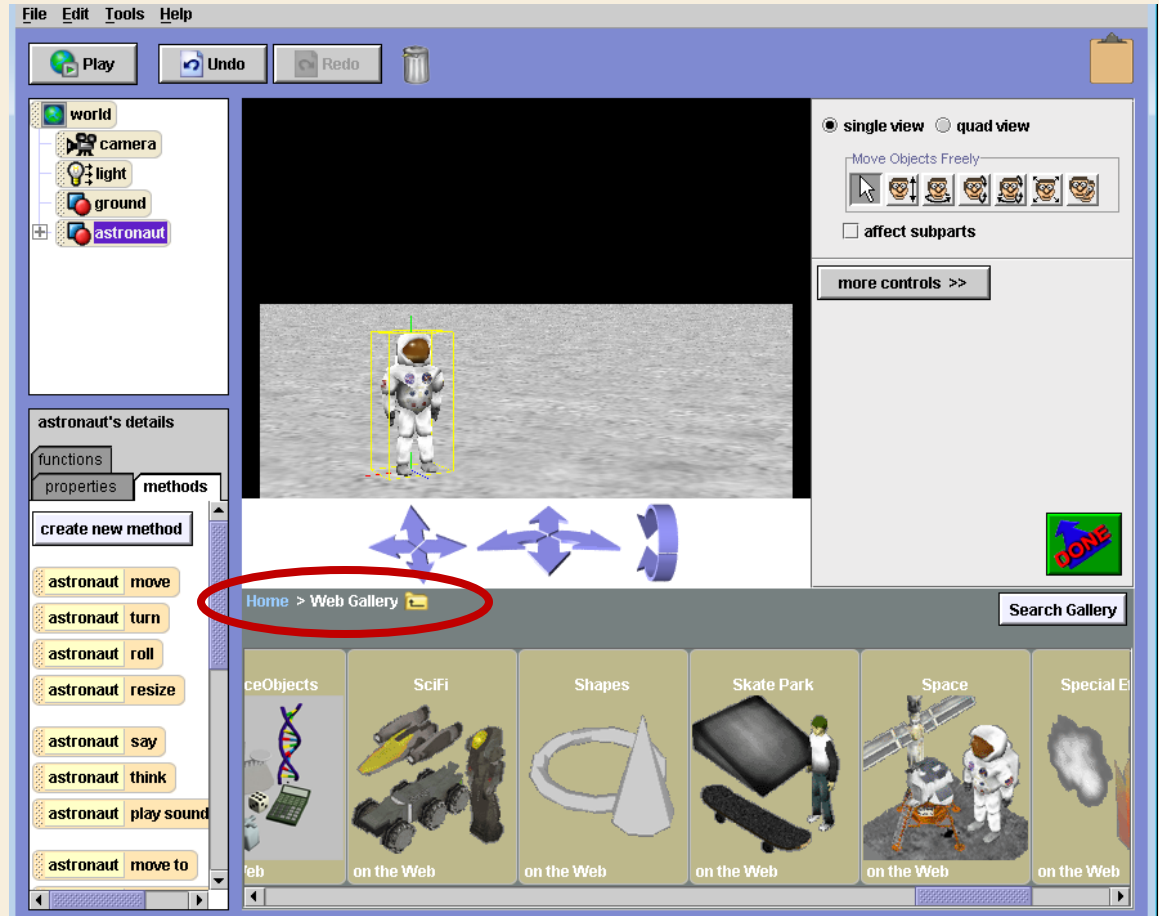
Adding Objects

1. Click Add Objects



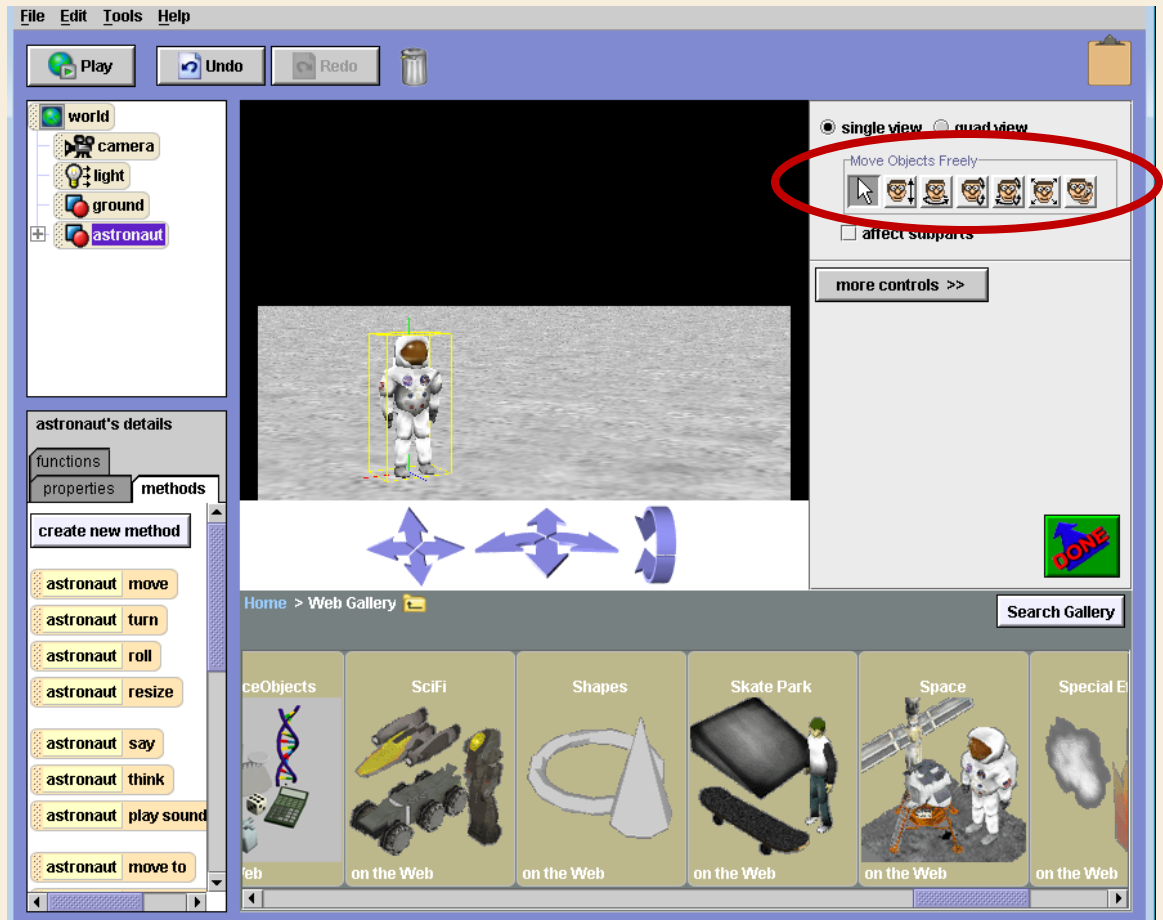
Adding objects

1. Click **Home**
2. Click **Web Gallery**
3. Scroll to find the “**Space**” folder
4. Find **Astronaut** and **Drag** into the World Preview



Positioning Tools

1. Turn the astronaut using the positioning tools
2. Click DONE
3. Click Play



Next slide

For positioning tools








Positioning Tools

1. Click on the tool that you want
2. Click & hold on the object you want to position.
3. Move the mouse to position the object.

Fix mistakes with



Set up - the next slide

Image	Name	Function
	Pointer Tool	Moves the object in any direction along the ground.
	Vertical Tool	Moves the object up or down.
	Turn Tool	Move left or right about its center point.
	Rotate Tool	Rotates the object forward or backward about its center.
	Tumble Tool	Rotates the object in any direction, keeping the center point fixed.
	Resize Tool	Changes the size of the object, keeping the center point fixed.
	Duplicate Tool	Creates an exact copy of the object.

☐ affect subparts

Events -

allow something to happen
while your world plays

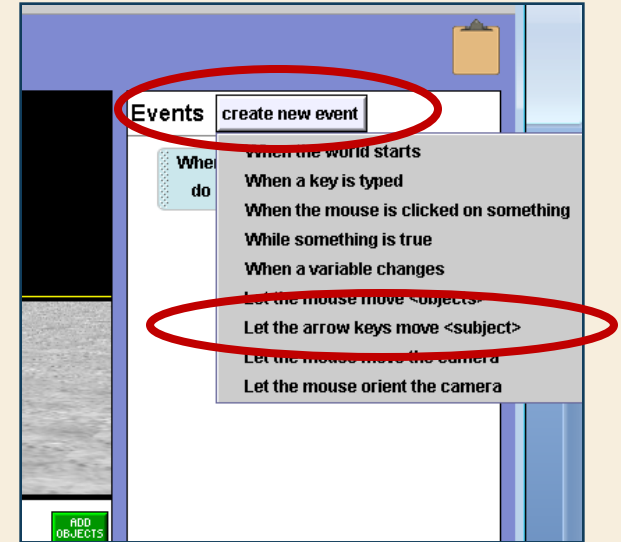
**Let's have the user
control the astronaut
with the arrow keys.**

Create New Event

1. Click on “create new event”
2. Choose
Let the arrow keys move
<subject>
3. Click on Camera and change to
astronaut, entire astronaut.
4. Play your world and use the
arrow keys to move astronaut

Did you loose your astronaut?

Now, the camera needs to follow him.



Property – vehicle

Allows one object to move with another

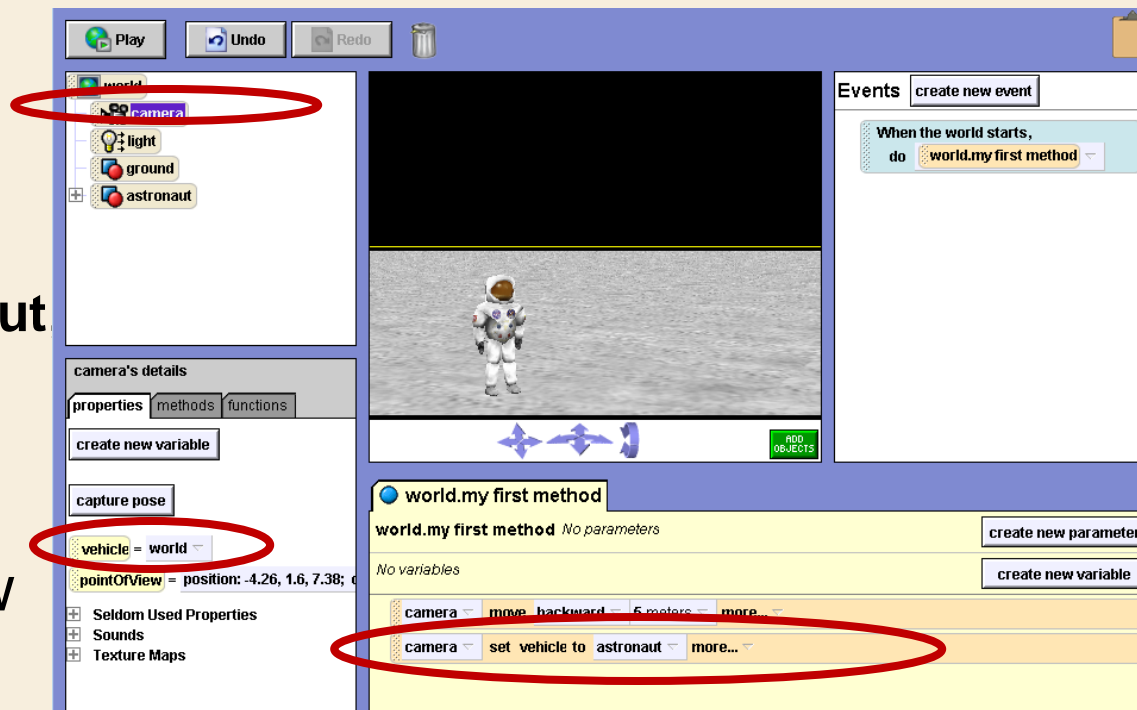
First turn the astronaut around

1. Click on astronaut
2. Drag “astronaut turn” and choose right 1/2 rotation

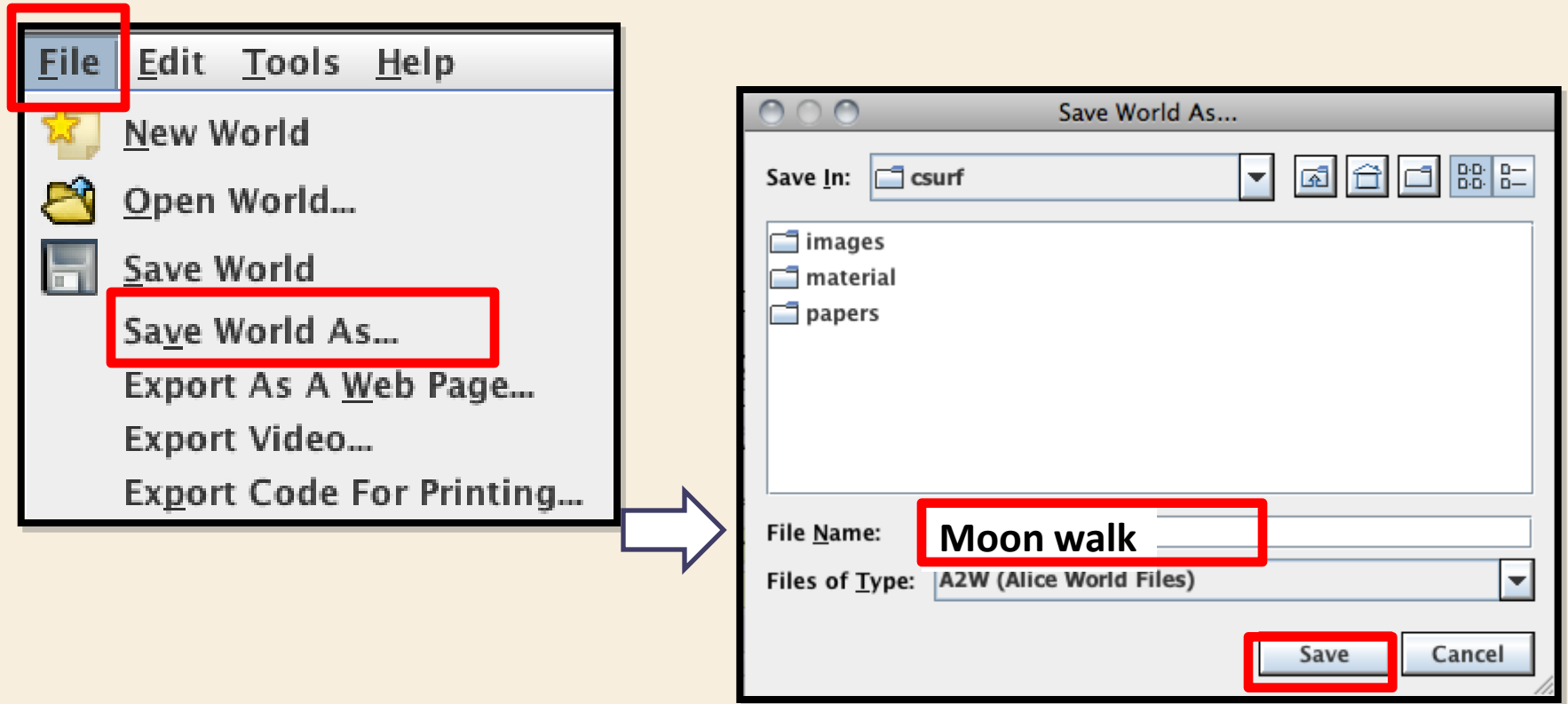


1. Click on **Camera**
2. Click **Properties**
3. Drag “**vehicle**” to the Editor area
4. Change “world” to **Astronaut / entire astronaut**
5. Click **Play**

Now camera should follow the astronaut



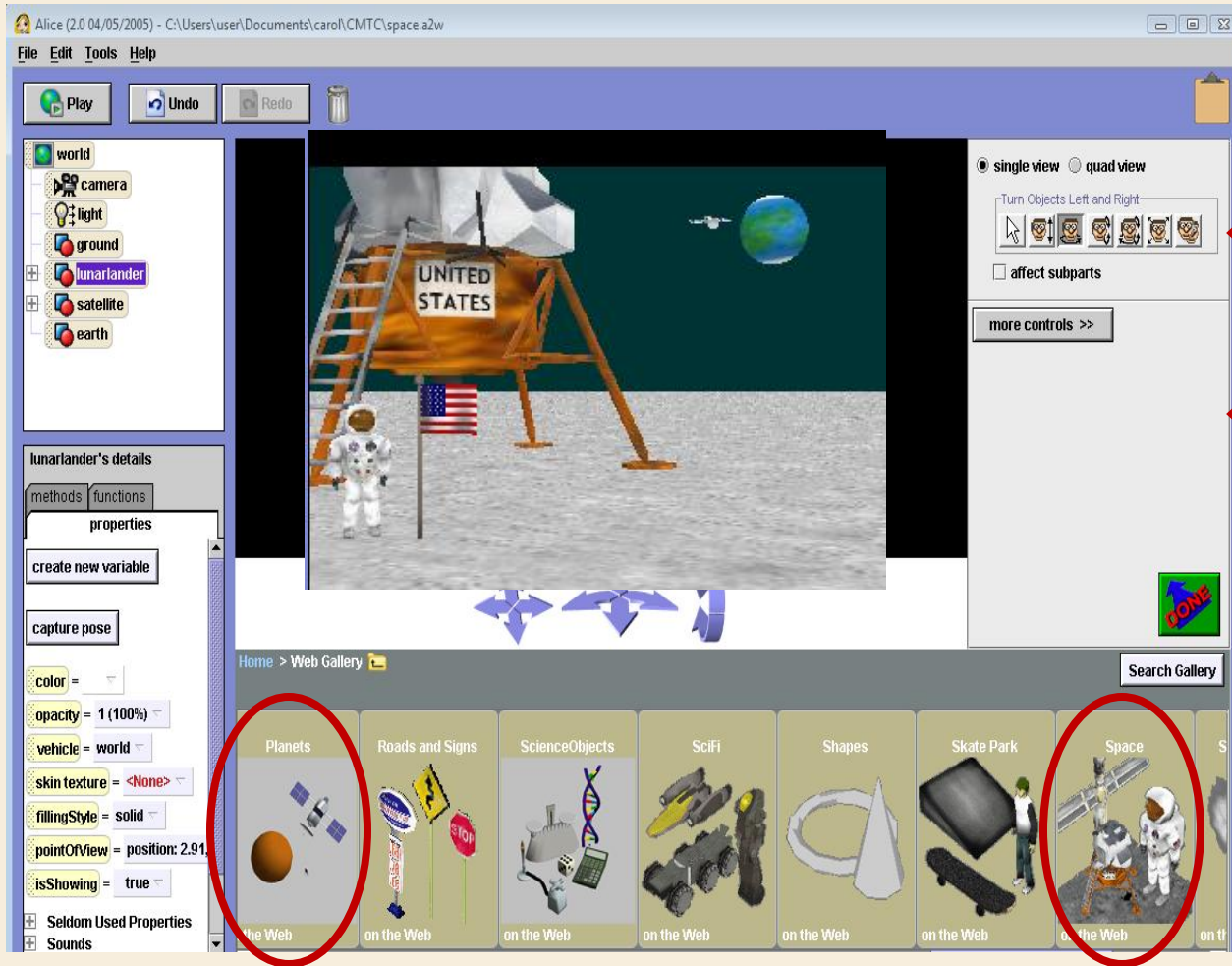
Save your world



Save your world often.

Alice will remind you to save your world every 15 minutes (you can change under preferences: Click on edit, preferences, seldom used).

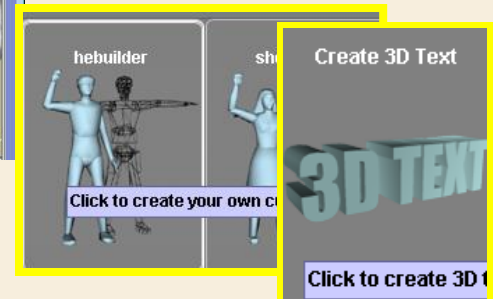
Add objects — add more objects and set up your scene, use positioning tools



Positioning Tools

**Snapshot of
scenes / views
For camera**

**Back to
Editing
Methods**



Add more objects

1. **Drag** the objects where you want them in the scene.

WEB GALLERY

Lunarlander (space)

Earth (new, planets)

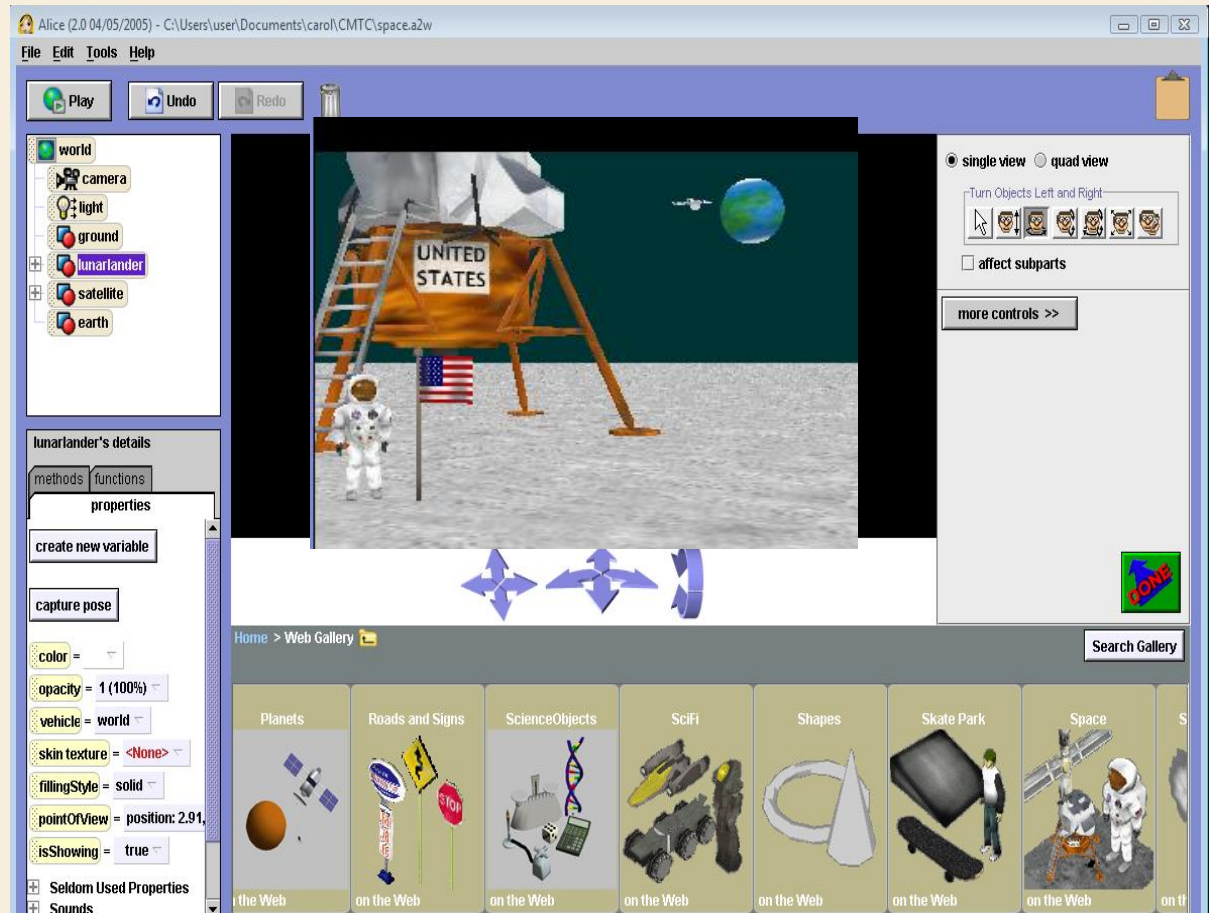
Satellite (new, planets)

Flag (objects)

Astronaut (space)

**Before you move
objects around**

* **SAVE** your
World



NOTE: Do not use the blue arrows yet, until you save

Saving a scene or camera view

By saving a scene the animation will always start at the same spot

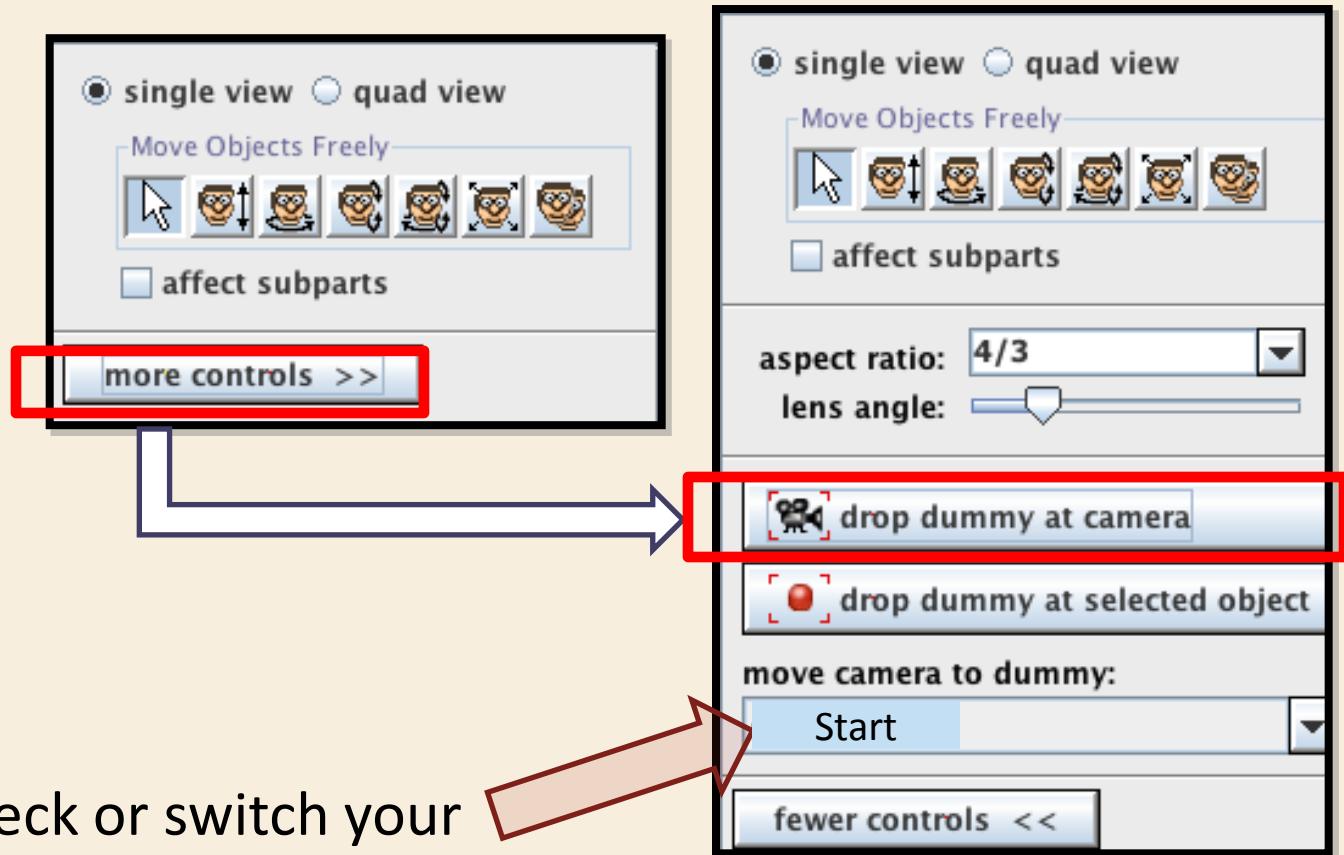
Or

can quickly switch to another area in your world

Saving a view or scene- (dummy objects)

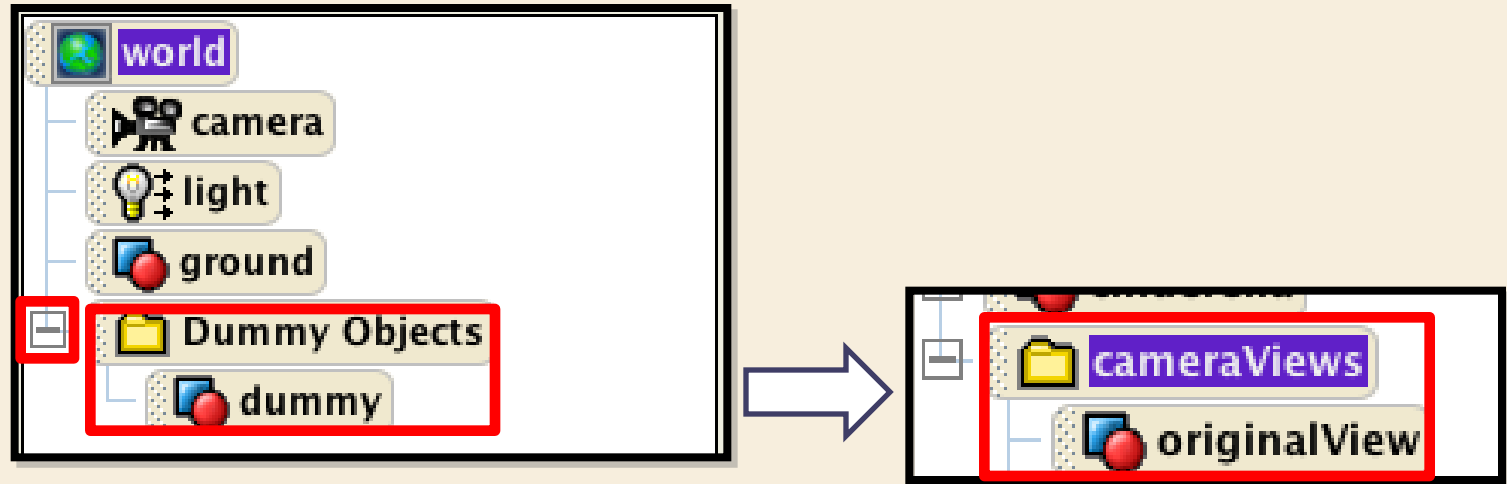
Before you move any objects, ground, etc.
save the Original Scene....

1. Click on
more
controls
2. Then
click drop
dummy at
camera.
3. Click
DONE



Check or switch your
views by selecting move camera

Renaming objects



A new Folder appears called **Dummy Objects**.

Right click it and **rename it cameraViews**.

Open the folder by clicking on the **+** next to it.

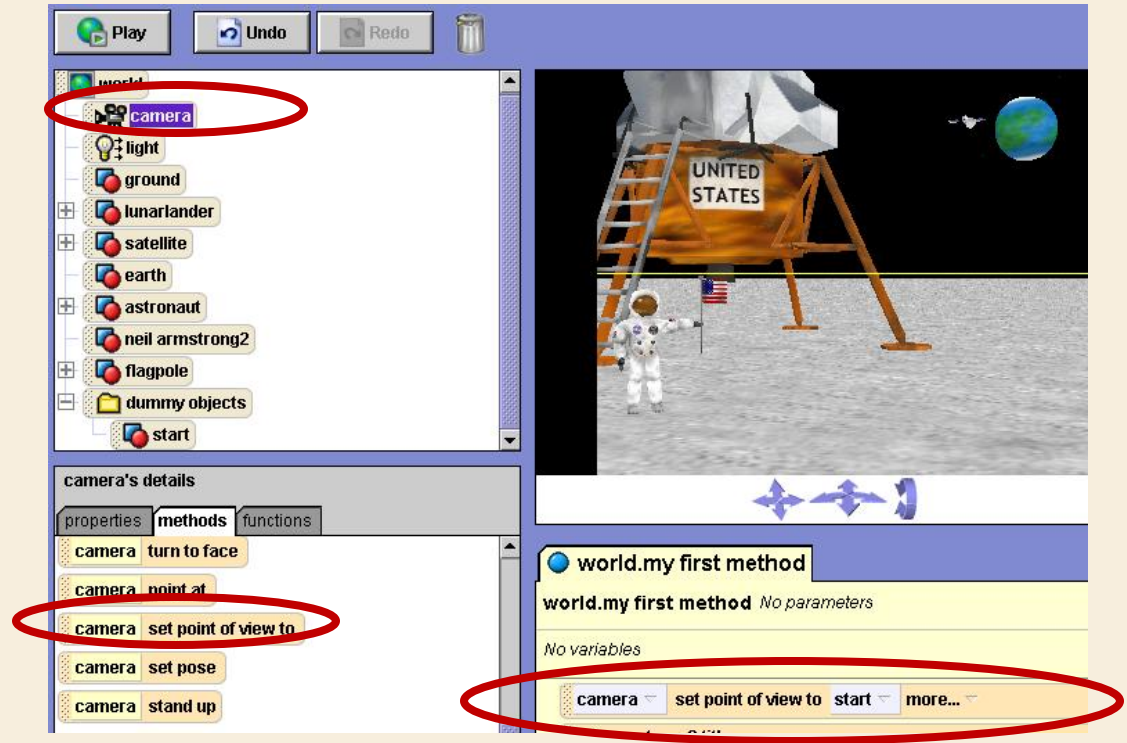
Right click on the dummy object and **rename it start or originalView**.

Click **DONE**

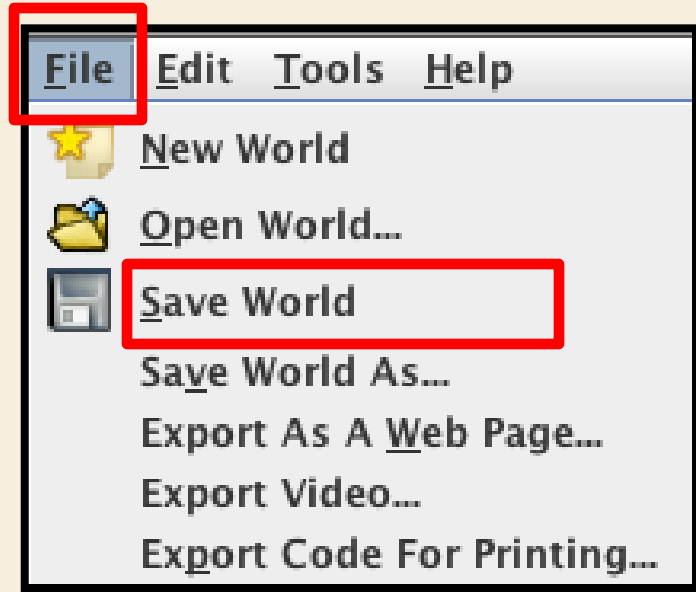


Add the camera view to beginning of “World.my first method”

1. Click on Camera
2. Click on Methods
3. Drag “Camera Set point of view to” over “do nothing”
4. Select - dummy objects / start
5. Click “more” and set the duration to “0” in order for it to switch instantly



Save your world



Progress Check

Methods

Create a new method for a series of steps so that it is easy to edit, fix, copy or add any time.

Testing a method

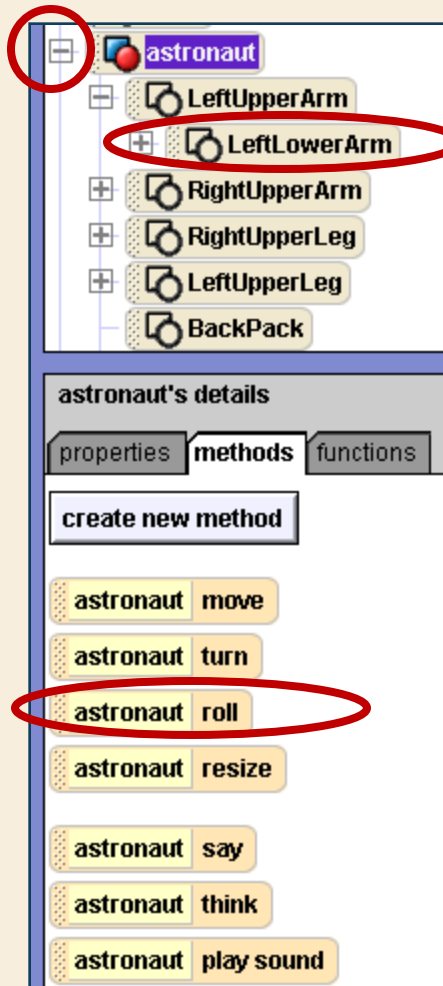
Drag a method into the scene to try it.
Click undo when you are done testing or keep it

Practice:

1. click on the + sign beside astronaut
2. click on - left upper arm
3. Drag the method “roll” into the world preview.

And Choose right $\frac{1}{4}$ so that it looks like he is holding the flag

UNDO if it doesn't work

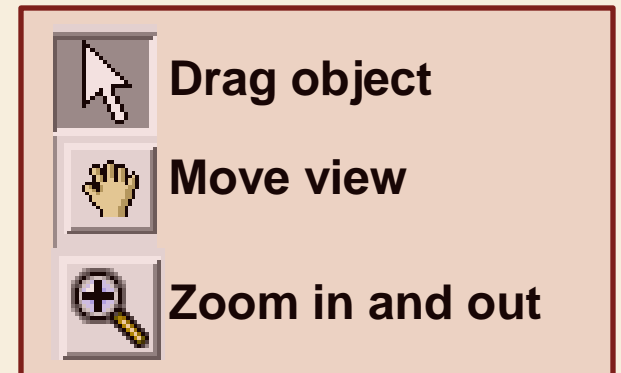
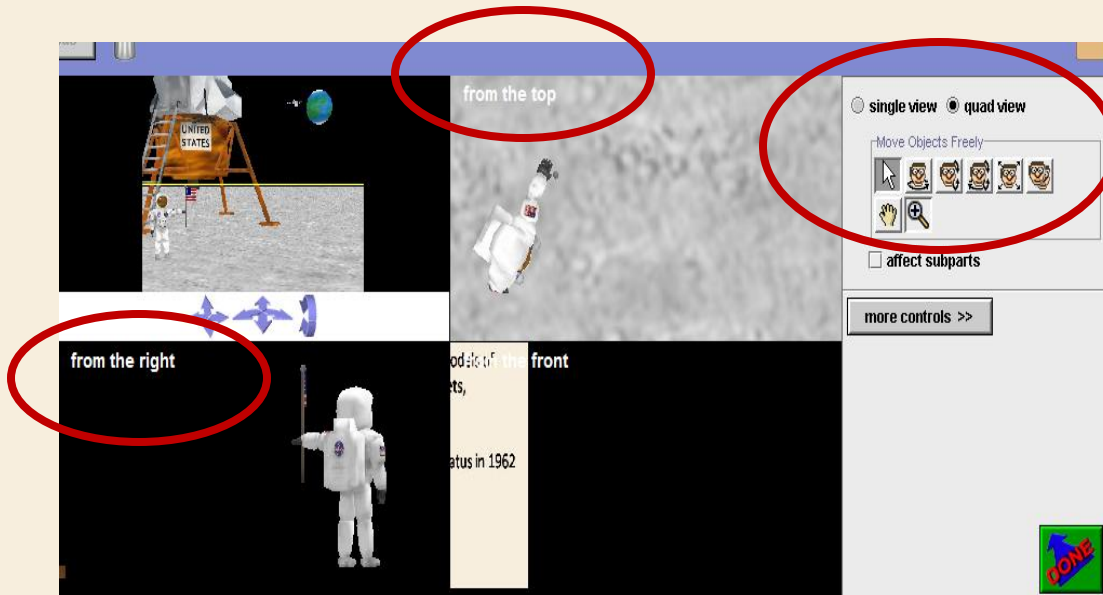


Quad View

Different views to help position your objects correctly

Position the flag on the astronaut's hand as close as possible. You can adjust it on the scene, using the Quad view

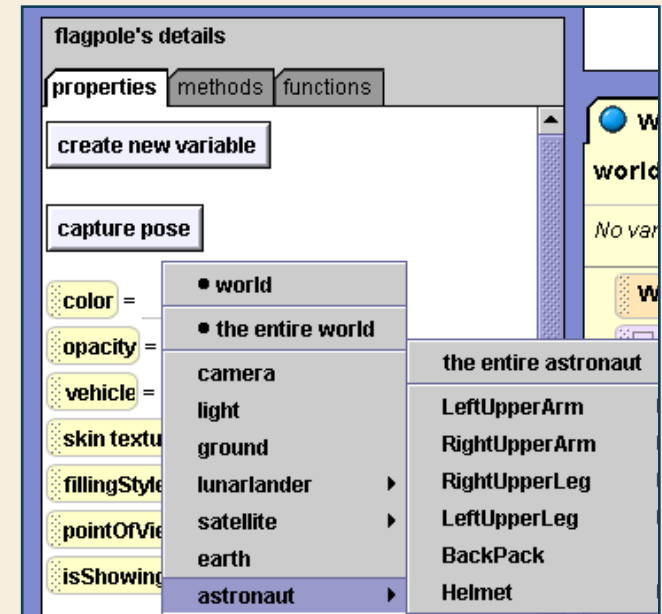
1. click add objects
2. select quad view



Vehicle

Have the flag move with the astronaut

- 1. Click on the flagpole (object tree)**
- 2. Click on properties**
- 3. Click the arrow next to vehicle**
- 4. Choose astronaut
/ the entire astronaut**
- 5. Play the world and use arrows
to move the astronaut,
check to see the flag move
with the astronaut**



Progress Check

Commands

organize or synchronize your methods



Do in order - Methods will play in order that you place them

Do together – Groups the methods, so they play together

If/Else - If something is true then something will happen

Loops – repeats the method

While – While something is true, something will happen

For all in order (used with list, multiple objects will do something one at a time.)

For all together (used with lists, multiple objects will do something together)

Wait - Methods will wait before the action

Print – prints the methods

- programmers notes (only in the script, not in play mode)

Add **methods** and **commands** to your work area

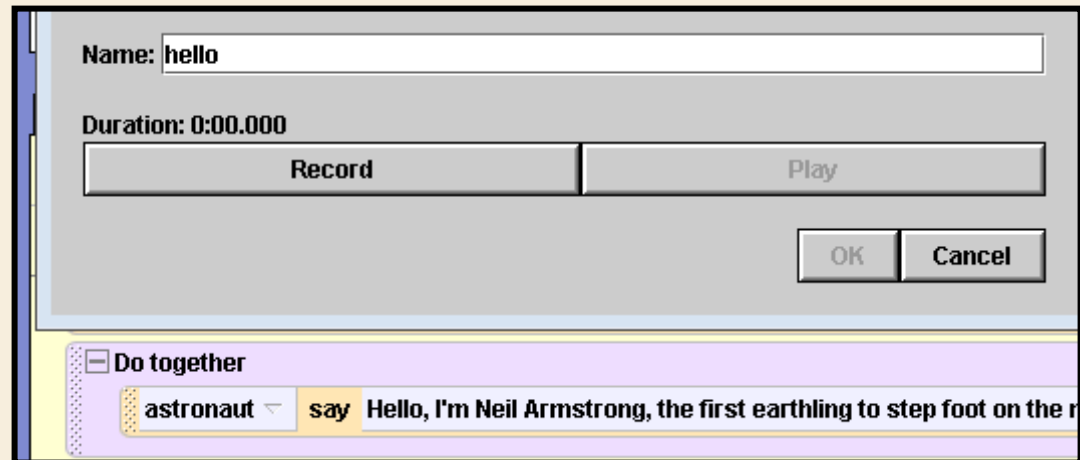
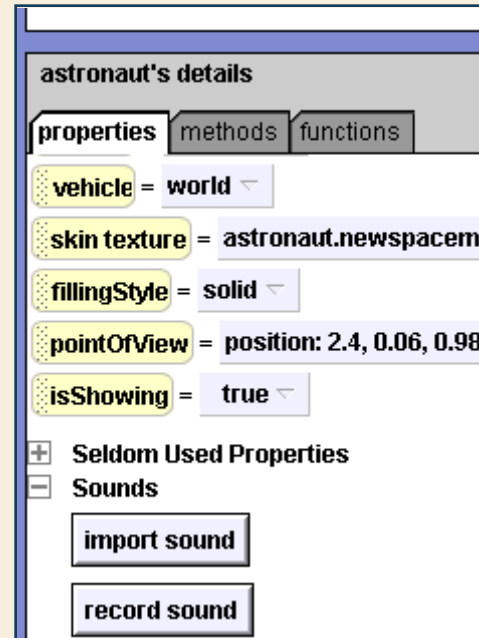
Practice

1. Drag in a **wait** 2 seconds from the bottom and put in the work area
2. Click on Astronaut
3. Click on method
4. Drag “astronaut say” into the work area in My First Method (over do nothing)
5. Click **other** and type what you want him to say
6. Click on “More” to change fonts, text color, size, etc.
7. Click Play to test

Add sound

1. Click on properties
2. Click the + next to sound
3. Click Record sound
4. Name your file
5. Click record and talk

Click Play to test

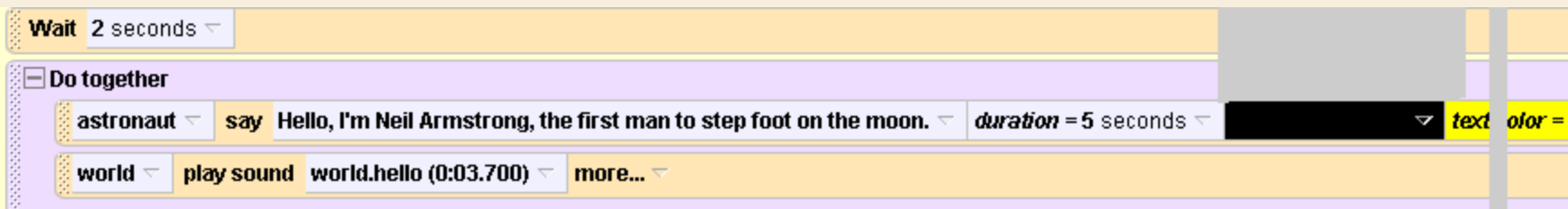


Add sound



(this method saves under the properties)

1. Drag the sound method you created into the work area
2. Drag up “**do together**”
3. Drag both methods over “do nothing” so that they play together

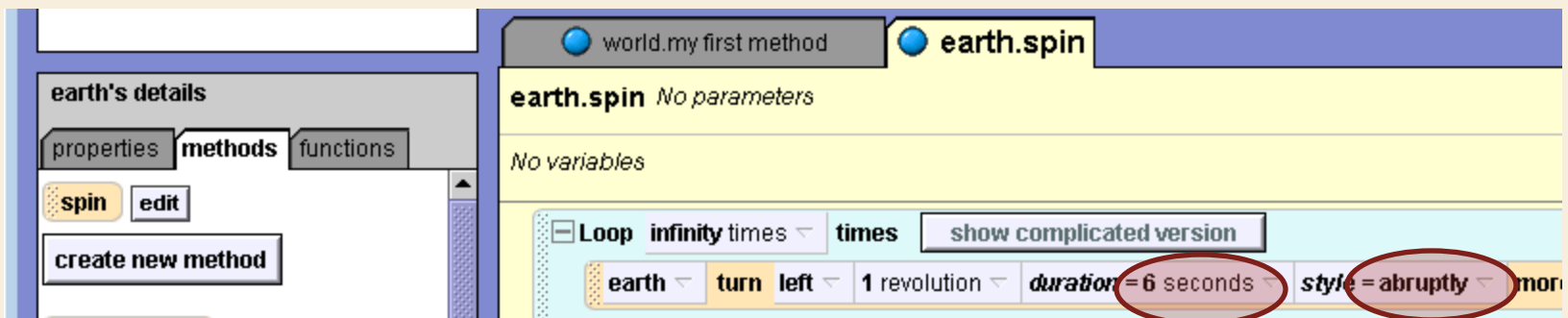
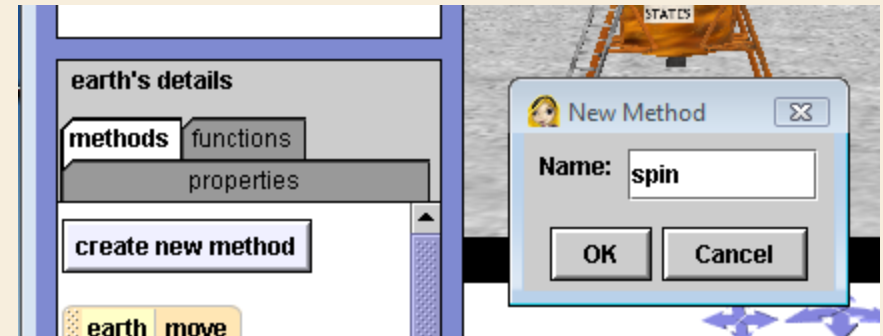


4. Click Play to test

Progress Check

Create a New Method - Earth spin

1. Select the **Earth** from the World or from the Object tree (top left)
2. **Create New Method** (under method menu) and name it “SPIN”
3. Drag the Method “**turn**” into the work area (over do nothing)
4. Click on **right**, 1 revolution
5. Click on **more** – duration = 20
6. Click on **more** - style = abruptly
7. Drag up “**LOOP**” command and click infinity
8. Drag the “earth turn” code over “do nothing”
9. Next we will add an event to have the world spin automatically



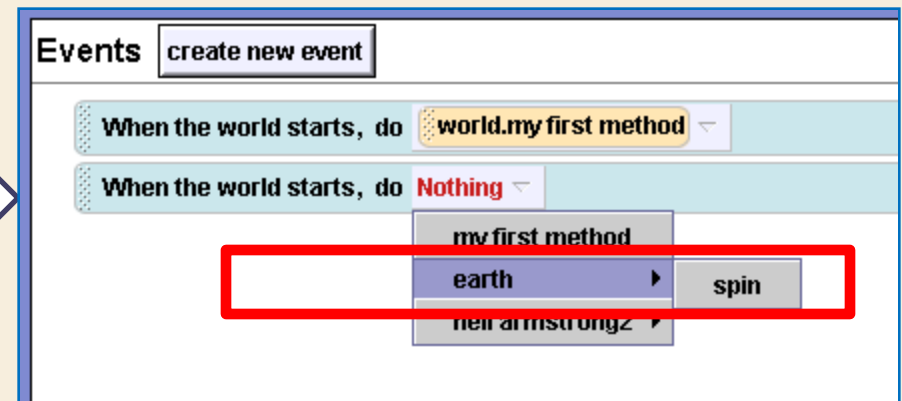
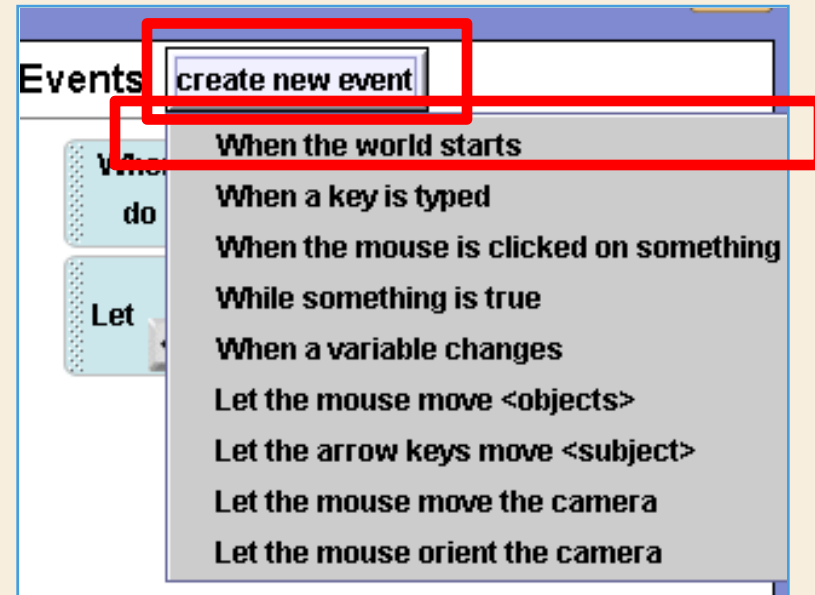
When the world starts we want
the Earth to spin continuously.

Next slide...

Create new event -

(for the Earth to spin automatically when the world starts)

1. Click **Create New Event** (top right)
2. Choose “*When world starts<subject>*”
3. Click on the arrow next to “nothing”
Select “Earth > spin”
or drag the method in
4. **Play** the world to test
5. **Save** your world



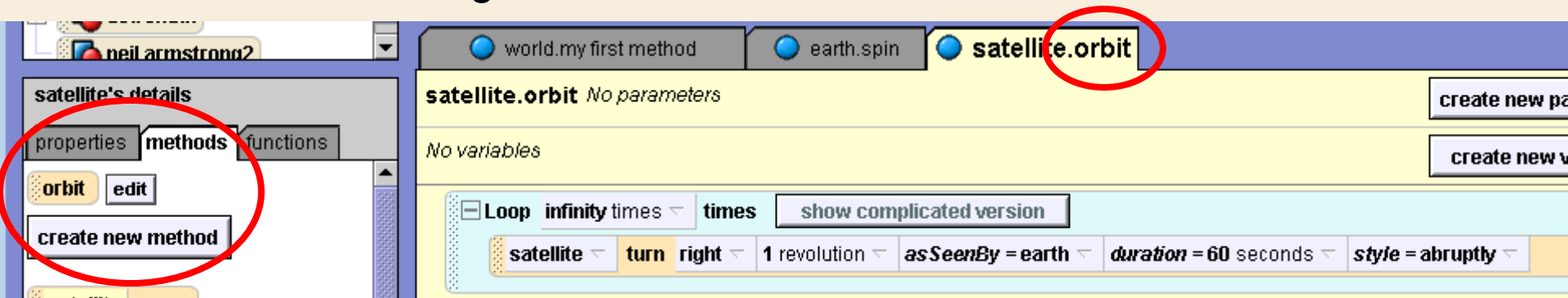
Progress Check

Next :

**Create another Method
and New Event for the
Satellite to orbit around the Earth**

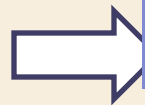
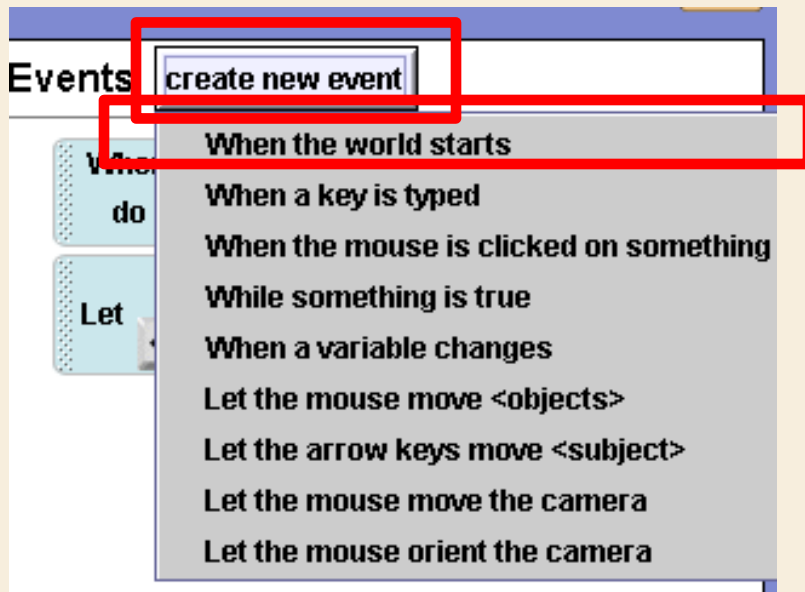
Create New Method - orbit

1. Select the **satellite** from the World or from the Object tree (top left)
2. **Create New Method** (under method menu) and name it “**orbit**”
3. Drag the Method “**turn**” into the work area (over do nothing)
4. Click on **right**, 1 revolution
5. Click on **more** - As Seen By = Earth
6. Click on **more** – duration = 60
7. Click on **more** - style = abruptly
8. Drag up “**LOOP**” command and click infinity
9. Drag the” satellite orbit” method over “do nothing”



Create New Event - (for the Satellite to orbit Earth)

1. **Create New Event** (top right)
2. Choose “*When world starts<subject>*”
3. **Click on the arrow next to “nothing”**
Select “*satellite> orbit*” (or drag the method in)
4. **Play** the world to test (adjust duration or spin direction in your method if you want to change it)
5. **Save** your world



Progress Check

If / Else

Add 3 objects for your astronaut to find.

Shapes or other

I used “rock” under the nature folder and copied it

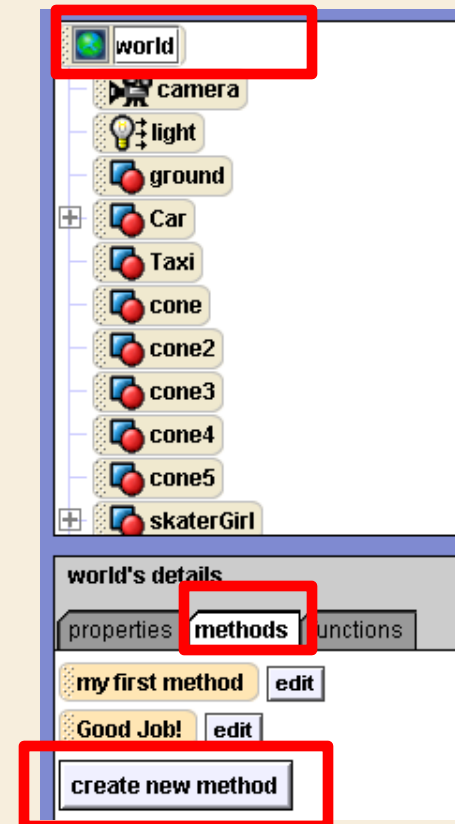
Ending ~

To end a game, an object could say something such as: Great Work, nice try, The End or You Win when it goes near the object.

Practice:

Create another method and event to have an object say something when one object is # of meters from another object.

1. Click on the World in the object tree
2. Click on methods
3. Click on “create new method”
4. Name it “Good Job” or (other)



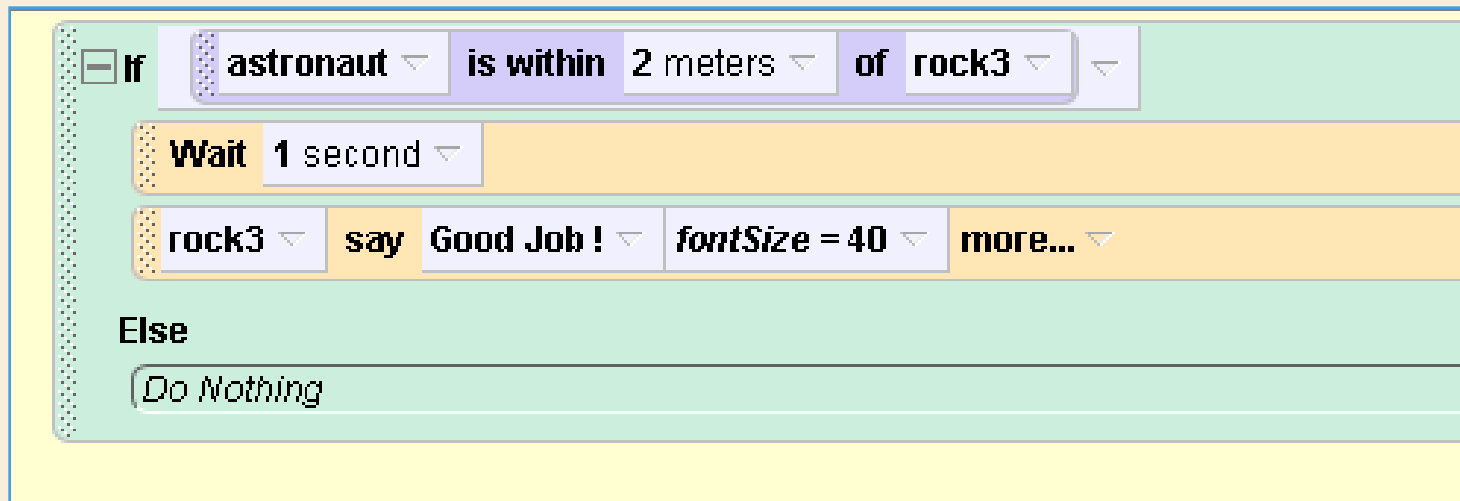
Ending If / Else Method

1. Click on “astronaut” from the object tree
2. Click on the **Functions** for details
3. Drag in “**If/Else**” command from the bottom into the new method and select “**true**”
4. Drag “astronaut within threshold of object” (over true) and Select 1 or 2 meters of rock 3 (or object of your choice)



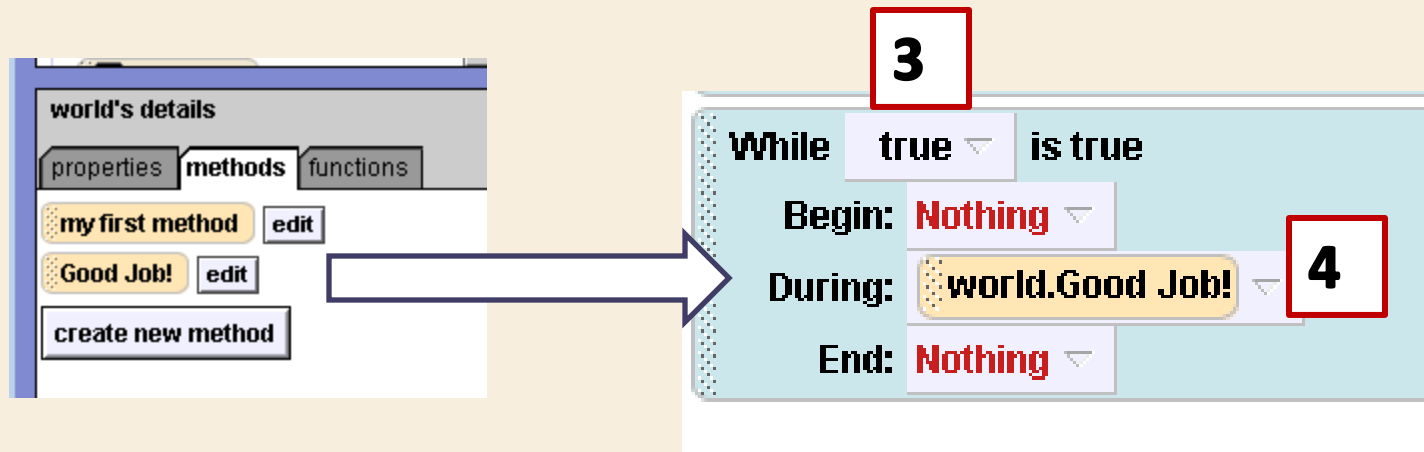
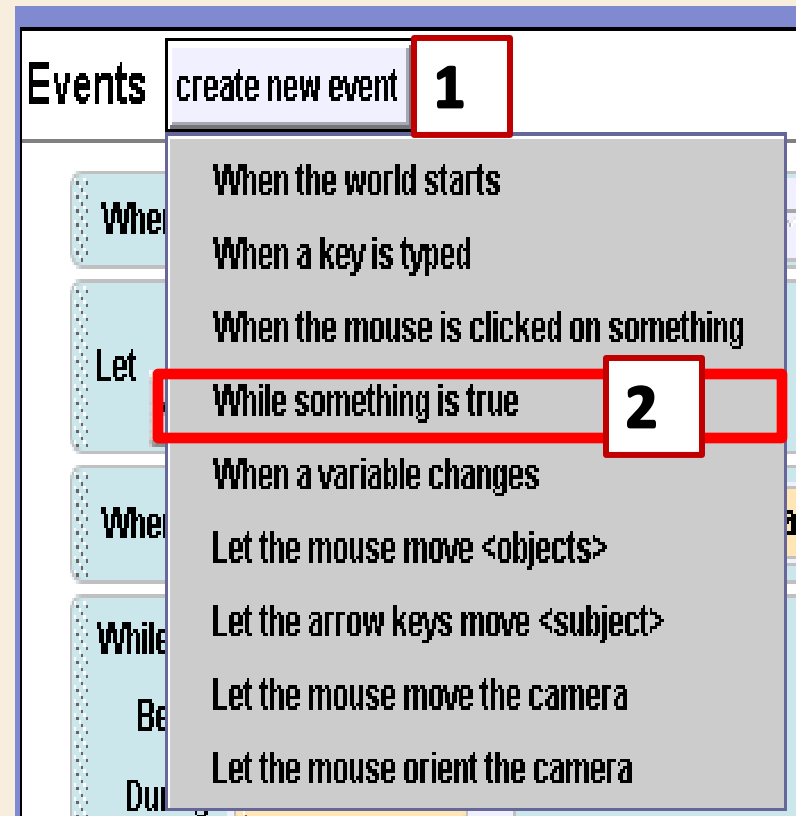
Ending: If / Else Method continued

1. Add a **Wait** command from the bottom and change to 1 second
2. Click on rock 3 or the object you want to win with and drag the **say method** and type “Great Job (or other)
3. Click on “More” to change **color** of text and **font size**



Ending - Part 2

1. Click **Create new event**
2. Select **While something is true**
3. Change **<none>** to **True**
4. Drag in the new method **Good Job over <nothing> beside “during”**

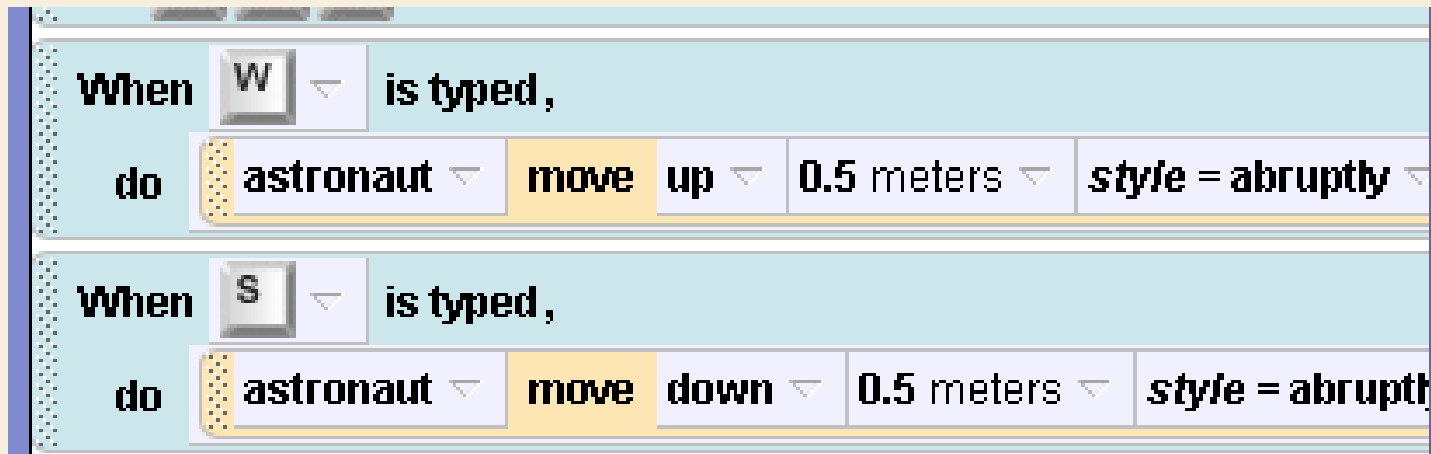


Play world to check

Play world to check

Optional: Add more Events

To have the astronaut go up and down the lunarlander



Adding a .jpg file

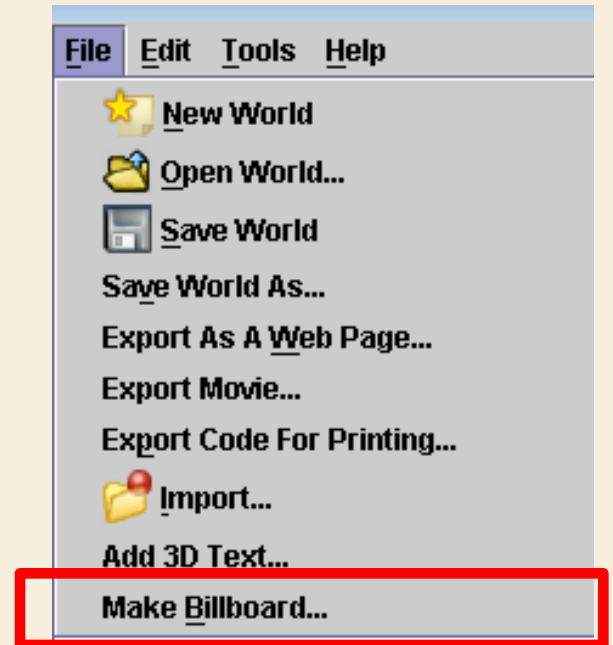
for a picture, title page, Instructions or credits

Save a .jpg file to your computer

(You can create in Paint or Powerpoint and save it as a .jpg file.)

To add it to Alice

Click on File / make billboard





Neil Armstrong

Aug. 5, 1930 – Aug. 25, 2012

Known as 1st man to walk on the moon.

Engineer, test pilot, astronaut and administrator for NACA & NASA

Served as a naval aviator from 1949 – 1952

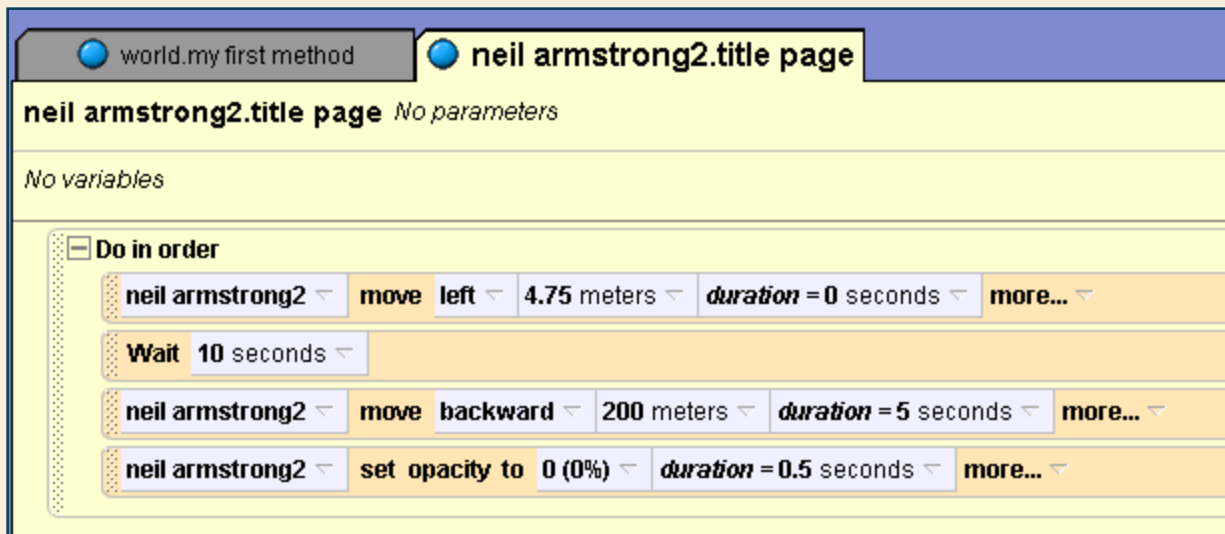
Flown over 200 different models of aircraft including jets, rockets, helicopters and gliders

Transferred to Astronaut status in 1962

NASA.org


Methods for the image file


1. Add image, resize it,
2. Moved it left 5 meters to work on the project without the image in the way (drag method to the world preview)
3. Create a NEW METHOD to move the image right 5 meters, wait 10 seconds, and then move backward and fade out to invisible
4. Add the title method to “World.myfirstmethod”




Save Work

Progress Check

 world.my first method

 world.Good Job

 neil armstrong2.title page

world.my first method *No parameters* [create new parameter](#)

No variables [create new variable](#)

camera ▾ set point of view to start ▾ more... ▾

neil armstrong2.title page

camera ▾ move backward ▾ 5 meters ▾ more... ▾

Wait 2 seconds ▾

Do together

astronaut ▾ say Hello, I'm Neil Armstrong, the first man to step foot on the moon. ▾ duration = 5 seconds ▾

te

world ▾ play sound world.hello (0:03.700) ▾ more... ▾

astronaut ▾ turn right ▾ 0.5 revolutions ▾ more... ▾

camera ▾ set vehicle to astronaut ▾ more... ▾

Congratulations

References

<http://www.Alice.org>

<http://www.ed2go.com/erating/>

Online line Class: Mike Orsega, Instructor

<http://www.cs.duke.edu/csed/alice09/>

Lessons and tutorials

Repository for Alice Materials

Summer 2009/2010/2011



Note about downloading Alice worlds

Most likely your computer does not know what an Alice world file is, with extension .a2w. If the Alice world you download is called story.a2w, your computer may think it is a .zip file and rename it to story.zip or story.a2w.zip. DO NOT unpack it or extract files, but instead rename it

back to story.a2w.

If you can't figure out how to rename it, you don't have to. Instead when you are loading the file into Alice, you can load it in as a .zip file if you select the option to load "ALL FILES", and not just ".a2w files".

Usage of materials

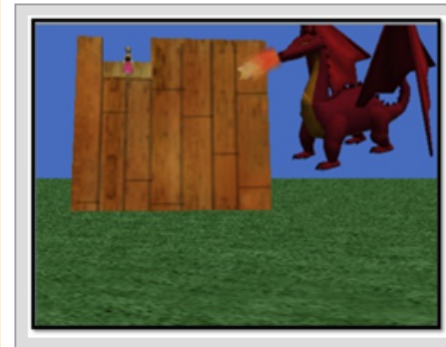
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Alice Tutorials

These tutorials were developed from Alice workshops held in summers 2008, 2009 and 2010. We are still adding tutorials in 2010. The tutorials are organized by topics. There are two groups, the first is called "getting started" and the second is "more tutorials".



Name: Princess a
Level: Beginner
Time: 45 Minutes

Description: This you how to add ob methods, camera many other things

Finished Worlds

Part 1: Scene Set up and Starting Animation

Links: [.ppt](#), [Slides \(.pdf\)](#), [2-Handout](#), [4-Handout](#)

Part 2: Writing Methods and Events

Links: [.ppt](#), [Slides \(.pdf\)](#), [2-Handout](#), [4-Handout](#)

Part 3: Camera Control, Invisibility and 3-D Text

Links: [.ppt](#), [Slides \(.pdf\)](#), [2-Handout](#), [4-Handout](#)

Part 4: Sounds, Billboards, 3D Text, AsSeenBy

Downloads: [creature roar2.wav](#), [forest-1.jpg](#), s

Links: [.ppt](#), [Slides \(.pdf\)](#), [2-Handout](#), [4-Handout](#)